

Dave Welker
Color-Box, LLC
623 South G Street
Richmond, IN 47374

Re: 177-14208-00063
First Minor Permit Revision to
MSOP No.: 177-10567-00063

Dear Mr. Welker:

Color-Box, LLC was issued a Minor Source Operating Permit on April 29, 1999. A letter requesting changes to this permit was received on March 28, 2001. Pursuant to the provisions of 326 IAC 2-6.1-6(g) a minor permit revision to this permit is hereby approved as described in the attached Technical Support Document.

The modification consists of the construction and operation of the following equipment:

- (a) One (1) starch silo, identified as S-1, with a storage capacity of 65 tons of starch, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #1;
- (b) One (1) starch kitchen (mixer), identified as S-2, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #2;
- (c) One (1) corrugator, identified as C-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4;
- (d) One (1) laminator, identified as L-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4;
- (e) One (1) shredder, identified as SH-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4;
- (f) One (1) baler, identified as BA-1;
- (g) Two (2) die cutters, identified as DC-1 and DC-2, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4; and
- (h) One (1) natural gas fired steam generator, identified as B-1, with a maximum heat input capacity of 6.2 million (MM) British thermal units (Btu) per hour, and exhausting to one stack identified as EP #3.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.
6. Prior to start of operation, the following requirements should be met:
 - (a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
 - (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
 - (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

Pursuant to 326 IAC 2-6.1-6(g), this permit shall be revised by incorporating the minor permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Nishat Hydari, c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call 973-575-2555 (ext. 3216) or 1-800-451-6027 press 0 and ask for extension 3-6878.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments

NH/EVP

cc: File - Wayne County
U.S. EPA, Region V
Wayne County Health Department
Air Compliance Section Inspector - Warren Greiling
Compliance Data Section - Jerri Curless
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michelle Boner

NEW SOURCE CONSTRUCTION PERMIT and MINOR SOURCE OPERATING PERMIT OFFICE OF AIR QUALITY

**Color-Box, Richmond Division
1056 Industries Road
Richmond, Indiana 47374**

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1 if new source, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 177-10567-00063	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date: April 29, 1999 Expiration Date: April 29, 2004

Notice Only Change 177-12877-00063, issued on: December 19, 2000

First Minor Permit Revision: 177-14208-00063	Pages Revised: 2, 2a, 3, 3a, 13a, 13b, 13c, 13d, 13e
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: May 10, 2001

TABLE OF CONTENTS

A SOURCE SUMMARY

- A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]
- A.2 Emission Units and Pollution Control Equipment Summary

B GENERAL CONSTRUCTION CONDITIONS

- B.1 Permit No Defense [IC 13]
- B.2 Definitions
- B.3 Effective Date of the Permit [IC 13-15-5-3]
- B.4 Revocation of Permits [326 IAC 2-1.1-9(5)]
- B.5 Modification to Permit [326 IAC 2]
- B.6 Minor Source Operating Permit [326 IAC 2-6.1]
- B.7 Phase Construction Time Frame

C SOURCE OPERATION CONDITIONS

- C.1 PSD Minor Source Status [326 IAC 2-2]
- C.2 Preventive Maintenance Plan [326 IAC 1-6-3]
- C.3 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]
- C.4 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)]
- C.5 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]
- C.6 Permit Revocation [326 IAC 2-1-9]
- C.7 Opacity [326 IAC 5-1]
- C.8 Fugitive Dust Emissions [326 IAC 6-4]
- C.9 Performance Testing [326 IAC 3-6]
- C.10 Compliance Monitoring [326 IAC 2-1.1-11]
- C.11 Monitoring Methods [326 IAC 3]

Record Keeping and Reporting Requirements

- C.12 Monitoring Data Availability [326 IAC 2-6.1-2] [IC 13-14-1-13]
- C.13 General Record Keeping Requirements [326 IAC 2-6.1-2]
- C.14 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

D.1 Emissions unit OPERATION CONDITIONS - Three (3) Printing Presses

Emission Limitations and Standards

- D.1.1 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

Compliance Determination Requirements

- D.1.2 Testing Requirements

Record Keeping and Reporting Requirements

- D.1.3 Record Keeping Requirements
- D.1.4 Reporting Requirements

D.2 Emissions unit OPERATION CONDITIONS

Emission Limitations and Standards

D.2.1 Particulate Matter (PM) [326 IAC 6-3]

D.2.2 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

Compliance Determination Requirements

D.2.3 Particulate Matter (PM)

Compliance Monitoring Requirements

D.2.4 Visible Emissions Notations

D.2.5 Parametric Monitoring

D.2.6 Baghouse Inspections

D.2.7 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement

D.2.8 Record Keeping Requirements

One (1) Quarterly Report Form

SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates stationary printing presses.

Authorized Individual: Frank Mazzei
Source Address: 1056 Industries Road, Richmond, Indiana 47374
Mailing Address: 623 South G Street, Richmond, Indiana 47374
Phone Number: (765) 966-7588
SIC Code: 2752
County Location: Wayne
County Status: Attainment for all criteria pollutants
Source Status: Minor Source Operating Permit
Minor Source, under PSD Rules

A.2 Emissions units and Pollution Control Equipment Summary

This stationary source is approved to construct and operate the following emissions units and pollution control devices:

- (a) Three (3) non-heatset offset lithographic printing presses (ID No. Press 1, 2, and 3), with a maximum line speed of 262.5 feet per minute and a maximum print width of 60 inches, each exhausting to stack ID # V1, V2 and V3, respectively.
- (b) One (1) starch silo, identified as S-1, with a storage capacity of 65 tons of starch, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #1.
- (c) One (1) starch kitchen (mixer), identified as S-2, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #2.
- (d) One (1) corrugator, identified as C-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (e) One (1) laminator, identified as L-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (f) One (1) shredder, identified as SH-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (g) One (1) baler, identified as BA-1.

- (h) Two (2) die cutters, identified as DC-1 and DC-2, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (i) One (1) natural gas fired steam generator, identified as B-1, with a maximum heat input capacity of 6.2 million (MM) British thermal units (Btu) per hour, and exhausting to one stack identified as EP #3.

SECTION D.2

Emissions unit OPERATION CONDITIONS

Emissions Unit Description

- (a) One (1) starch silo, identified as S-1, with a storage capacity of 65 tons of starch, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #1.
- (b) One (1) starch kitchen (mixer), identified as S-2, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #2.
- (c) One (1) corrugator, identified as C-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (d) One (1) laminator, identified as L-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (e) One (1) shredder, identified as SH-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (f) One (1) baler, identified as BA-1.
- (g) Two (2) die cutters, identified as DC-1 and DC-2, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (h) One (1) natural gas fired steam generator, identified as B-1, with a maximum heat input capacity of 6.2 million (MM) British thermal units (Btu) per hour, and exhausting to one stack identified as EP #3.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards

D.2.1 Particulate Matter (PM) [326 IAC 6-3]

- (a) The particulate matter (PM) from the starch silo (identified as S-1) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

- (b) The particulate matter (PM) from the starch kitchen (identified as S-2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

- (c) The particulate matter (PM) from the corrugator (C-1), laminator (identified as L-1), shredder (identified as SH-1) and the two (2) die cutters (identified as DC-1 and DC-2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

D.2.2 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

Any change or modification which would increase the potential to emit VOC from the corrugator (C-1)/laminator (L-1) to twenty-five (25) tons per year or more, shall obtain prior approval from IDEM, OAQ and shall be subject to the requirements of 326 IAC 8-1-6.

Compliance Determination Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.3 Particulate Matter (PM)

- (a) The baghouse for PM control shall be in operation at all times when the starch silo (identified as S-1) is in operation.
- (b) The baghouse for PM control shall be in operation at all times when the starch kitchen (identified S-2) is in operation.
- (c) The air separator/air screen (identified as S-3) for PM control shall be in operation at all times when the corrugator (C-1), laminator (identified as L-1), shredder (SH-1) and the two (2) die cutters (identified as DC-1 and DC-2) are in operation.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.4 Visible Emissions Notations

- (a) Visible emission notations of the starch silo (S-1), starch kitchen (S-2), corrugator (C-1), laminator (L-1), shredder (SH-1) and two (2) die cutters (DC-1 and DC-2) stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.2.5 Parametric Monitoring

- (a) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the starch silo (S-1), at least once per shift when the starch silo (S-1) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 0.5 and 5.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

- (b) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the starch kitchen (S-2), at least once per shift when the starch kitchen (S-2) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 0.5 and 5.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

- (c) The Permittee shall record the total static pressure drop across the air separator/air screen (identified as S-3) used in conjunction with the corrugator (C-1), laminator (L-1), shredder (SH-1) and the two (2) die cutters (DC-1 and DC-2) at least once per shift when the corrugator (C-1), laminator (L-1), shredder (SH-1) and the two (2) die cutters (DC-1 and DC-2) are in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 0.5 and 5.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.2.6 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the starch silo (S-1), starch kitchen (S-2), corrugator (C-1), laminator (L-1), shredder (SH-1) and the two (2) die cutters (DC-1 and DC-2) when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.2.7 Broken or Failed Bag Detection

In the event that bag failure has been observed:

- (a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirement [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.8 Record Keeping Requirements

- (a) To document compliance with Condition D.2.4, the Permittee shall maintain records of daily visible emission notations of the starch silo (S-1), starch kitchen (S-2), corrugator (C-1), laminator (L-1), shredder (SH-1) and two (2) die cutters (DC-1 and DC-2) stack exhaust.
- (b) To document compliance with Condition D.2.5, the Permittee shall maintain the following:
 - (1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:
 - (A) Inlet and outlet differential static pressure; and
 - (B) Cleaning cycle: frequency and differential pressure.
 - (2) Documentation of all response steps implemented, per event .
 - (3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.
 - (4) Quality Assurance/Quality Control (QA/QC) procedures.
 - (5) Operator standard operating procedures (SOP).
 - (6) Manufacturer's specifications or its equivalent.
 - (7) Equipment "troubleshooting" contingency plan.

- (8) Documentation of the dates vents are redirected.
- (c) To document compliance with Condition D.2.6, the Permittee shall maintain records of the results of the inspections required under Condition D.2.6 and the dates the vents are redirected.
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**Indiana Department of Environmental Management
Office of Air Quality**

**Technical Support Document (TSD) for a Minor Permit Revision to a Minor
Source Operating Permit**

Source Background and Description

Source Name:	Color-Box, LLC
Source Location:	1056 Industries Road, Richmond, IN 47374
County:	Wayne
SIC Code:	2752
Operation Permit No.:	MSOP 177-10567-00063
Operation Permit Issuance Date:	April 29, 1999
Minor Permit Revision No.:	177-14208-00063
Permit Reviewer:	NH/EVP

History

On March 28, 2001, Color-Box, LLC submitted an application to the OAQ requesting to add the following emission units to their facility: corrugator, laminator, starch system, diecutter with scrap handling system and a steam generator. Color-Box, LLC was issued a Minor Source Operating Permit (MSOP 177-10567-00063) on April 29, 1999.

New Emission Units and Pollution Control Equipment Receiving Prior Approval

The application includes information relating to the prior approval for the construction and operation of the following equipment:

- (a) One (1) starch silo, identified as S-1, with a storage capacity of 65 tons of starch, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #1;
- (b) One (1) starch kitchen (mixer), identified as S-2, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #2;
- (c) One (1) corrugator, identified as C-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4;
- (d) One (1) laminator, identified as L-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4;
- (e) One (1) shredder, identified as SH-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4;
- (f) One (1) baler, identified as BA-1;

- (g) Two (2) die cutters, identified as DC-1 and DC-2, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4; and
- (h) One (1) natural gas fired steam generator, identified as B-1, with a maximum heat input capacity of 6.2 million (MM) British thermal units (Btu) per hour, and exhausting to one stack identified as EP #3.

Air Pollution Control Justification as an Integral Part of the Process

The company has submitted the following justification such that the Air Separator/Air Screen (identified as S-3) be considered as an integral part of the corrugator (C-1), laminator (L-1), shredder (SH-1), die cutter 1 (DC-1) and die cutter 2 (DC-2) process.

- (a) The system referenced above has been designed to pneumatically convey trim scrap paper from various generation points at pieces of individual equipment to a central location. At this location the scrap is separated by the air separator/screen. The air is discharged inside the building for energy recovery and the paper scrap drops into a baler that bales the material for shipment to a paper mill for recycling. Without the scrap separation system the pneumatic conveyance of this material would not be feasible.
- (b) This system could not operate without a mechanical means to separate the scrap from the air stream. The primary purpose of the scrap system is efficient material handling not pollution control.

IDEM, OAQ has evaluated the justifications and agreed that the air separator/air screen will be considered as an integral part of the corrugator (C-1), laminator (L-1), shredder (SH-1), die cutter 1 (DC-1) and die cutter 2 (DC-2) process. Therefore, the permitting level will be determined using the potential to emit after the air separator/air screen. Operating conditions in the proposed permit will specify that this air separator/air screen shall operate at all times when the corrugator (C-1), laminator (L-1), shredder (SH-1), die cutter 1 (DC-1) or die cutter 2 (DC-2) are in operation.

The company has also submitted the following justification such that the baghouse for the starch silo (S-1) and the baghouse for the starch kitchen (S-2) be considered as an integral part of the process.

- (a) The system referenced above has been designed to pneumatically convey powdered cornstarch from a bulk truck to our silo and from the silo to our starch kitchen. The cornstarch is used as a raw material in the adhesive mixture used in the corrugation process. The air is discharged from the silo vent to relieve the pressure and vent the air used to convey the material.
- (b) The primary purpose of the vent system is to relieve the pressure build-up in the silo associated with filling the silo.

IDEM, OAQ has evaluated the justifications and agreed that the baghouse for the starch silo (S-1) and the baghouse for the starch kitchen (S-2) will be considered as an integral part of the starch silo (S-1) and starch kitchen (S-2) process. Therefore, the permitting level will be determined using the potential to emit after the baghouses. Operating conditions in the proposed permit will specify that this baghouses shall operate at all times when the starch silo (S-1) and the starch kitchen (S-2) are in operation.

Existing Approvals

The source was issued a Minor Source Operating Permit (MSOP 177-10567-00063) on April 29, 1999. The source has since received the following:

- (a) Notice only Change 177-12877-00063, issued on December 19, 2000.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
EP #1	Starch Silo Bin Vent	48	6" x 12" Square	300	Ambient
EP #2	Starch Transfer Line Bin Vent	N/A; Inside	6" x 12" Square	190	Ambient
EP #3	Steam Generator Vent	30	18"	Unknown	300
EP #4	Scrap Transfer Air Filter	N/A; Inside	Unknown	30,500	Ambient

Recommendation

The staff recommends to the Commissioner that the Minor Permit Revision be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 28, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, pages 1 through 6).

Potential To Emit of the Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

Pollutant	Potential To Emit (tons/year)
PM	3.30
PM-10	3.46
SO ₂	0.02
VOC	23.04
CO	2.28
NO _x	2.72

Note: For the purpose of determining Title V applicability for particulates, PM-10, not PM, is the regulated pollutant in consideration.

HAP's	Potential To Emit (tons/year)
Vinyl Acetate	2.66
Acetaldehyde	2.66
Formaldehyde	0.28
Methyl Alcohol	0.07
TOTAL	5.67

- (a) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Justification for the Modification

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants is below 25 tons per year. Therefore, the MSOP source is being modified through a MSOP Minor Permit Revision. This modification is being performed pursuant to 326 IAC 2-6.1-6(g).

Actual Emissions

No previous emission data has been received from the source.

Limited Potential to Emit of the Modification

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)							
Process/facility	PM	PM-10	SO ₂	VOC	CO	NO _x	Single HAP	HAPs
Baghouse EP-1	0.45	0.45	--	--	--	--	--	--
Baghouse EP-2	0.29	0.29	--	--	--	--	--	--
Baghouse EP-4	2.51	2.51	--	--	--	--	--	--
Corrugator/ Laminator	--	--	--	22.89	--	--	2.66	5.67
Natural Gas Combustion	0.05	0.21	0.02	0.15	2.28	2.72	--	--
Total Emissions	3.30	3.46	0.02	23.04	2.28	2.72	2.66	5.67

Notes: Baghouse EP-1 controls PM/PM10 emissions from the starch silo (S-1)
 Baghouse EP-2 controls PM/PM10 emissions from the starch kitchen (S-2)
 Baghouse EP-4 controls PM/PM10 emissions from the Corrugator (C-1), Laminator (L-1),
 Shredder (SH-1), Die Cutter 1 (DC-1) and Die Cutter (DC-2)

County Attainment Status

The source is located in Wayne County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Wayne County has been designated as attainment or unclassifiable for ozone.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of PM and PM₁₀. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of the corrugator (C-1)/laminator (L-1) will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 6-3-2 (Process Operations)

- (a) The particulate matter (PM) from the starch silo (identified as S-1) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The baghouse shall be in operation at all times the starch silo (identified as S-1) is in operation, in order to comply with this limit.

- (b) The particulate matter (PM) from the starch kitchen (identified as S-2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The baghouse shall be in operation at all times the starch kitchen (identified as S-2) is in operation, in order to comply with this limit.

- (c) The particulate matter (PM) from the corrugator (C-1), laminator (identified as L-1), shredder (identified as SH-1) and the two (2) die cutters (identified as DC-1 and DC-2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The baghouse shall be in operation at all times the corrugator (C-1), laminator (identified as L-1), shredder (SH-1) and the two (2) die cutters (identified as DC-1 and DC-2) is in operation, in order to comply with this limit.

326 IAC 8-1-6 (New Facilities; General Reduction Requirements)

The corrugator (C-1)/laminator (L-1) are not subject to the requirements of 326 IAC 8-1-6 because they have a total potential to emit VOC of less than 25 tons per year.

Changes Proposed

The new emission units have been added to Section A.2.

A.2 Emissions units and Pollution Control Equipment Summary

This stationary source is approved to construct and operate the following emissions units and pollution control devices:

- (a) Three (3) non-heatset offset lithographic printing presses (ID No. Press 1, 2, and 3), with a maximum line speed of 262.5 feet per minute and a maximum print width of 60 inches, each exhausting to stack ID # V1, V2 and V3, respectively.
- (b) **One (1) starch silo, identified as S-1, with a storage capacity of 65 tons of starch, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #1.**
- (c) **One (1) starch kitchen (mixer), identified as S-2, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #2.**
- (d) **One (1) corrugator, identified as C-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.**
- (e) **One (1) laminator, identified as L-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.**
- (f) **One (1) shredder, identified as SH-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.**
- (g) **One (1) baler, identified as BA-1.**
- (h) **Two (2) die cutters, identified as DC-1 and DC-2, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.**
- (i) **One (1) natural gas fired steam generator, identified as B-1, with a maximum heat input capacity of 6.2 million (MM) British thermal units (Btu) per hour, and exhausting to one stack identified as EP #3.**

A new Section D.2 for the new emission units will be added to the permit.

SECTION D.2 Emissions unit OPERATION CONDITIONS

Emissions Unit Description

- (a) One (1) starch silo, identified as S-1, with a storage capacity of 65 tons of starch, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #1.
- (b) One (1) starch kitchen (mixer), identified as S-2, utilizing a baghouse for particulate matter control and exhausting to one (1) stack, identified as EP #2.
- (c) One (1) corrugator, identified as C-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (d) One (1) laminator, identified as L-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (e) One (1) shredder, identified as SH-1, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (f) One (1) baler, identified as BA-1.
- (g) Two (2) die cutters, identified as DC-1 and DC-2, utilizing an air separator/air screen (identified as S-3) for particulate matter control and exhausting to one (1) stack, identified as EP #4.
- (h) One (1) natural gas fired steam generator, identified as B-1, with a maximum heat input capacity of 6.2 million (MM) British thermal units (Btu) per hour, and exhausting to one stack identified as EP #3.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards

D.2.1 Particulate Matter (PM) [326 IAC 6-3]

- (a) The particulate matter (PM) from the starch silo (identified as S-1) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

- (b) The particulate matter (PM) from the starch kitchen (identified as S-2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

- (c) The particulate matter (PM) from the corrugator (C-1), laminator (identified as L-1), shredder (identified as SH-1) and the two (2) die cutters (identified as DC-1 and DC-2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

D.2.2 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

Any change or modification which would increase the potential to emit VOC from the corrugator (C-1)/laminator (L-1) to twenty-five (25) tons per year or more, shall obtain prior approval from IDEM, OAQ and shall be subject to the requirements of 326 IAC 8-1-6.

Compliance Determination Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.3 Particulate Matter (PM)

- (a) The baghouse for PM control shall be in operation at all times when the starch silo (identified as S-1) is in operation.
- (b) The baghouse for PM control shall be in operation at all times when the starch kitchen (identified S-2) is in operation.
- (c) The air separator/air screen (identified as S-3) for PM control shall be in operation at all times when the corrugator (C-1), laminator (identified as L-1), shredder (SH-1) and the two (2) die cutters (identified as DC-1 and DC-2) are in operation.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.4 Visible Emissions Notations

- (a) Visible emission notations of the starch silo (S-1), starch kitchen (S-2), corrugator (C-1), laminator (L-1), shredder (SH-1) and two (2) die cutters (DC-1 and DC-2) stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.2.5 Parametric Monitoring

- (a) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the starch silo (S-1), at least once per shift when the starch silo (S-1) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 0.5 and 5.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

- (b) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the starch kitchen (S-2), at least once per shift when the starch kitchen (S-2) is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 0.5 and 5.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

- (c) The Permittee shall record the total static pressure drop across the air separator/air screen (identified as S-3) used in conjunction with the corrugator (C-1), laminator (L-1), shredder (SH-1) and the two (2) die cutters (DC-1 and DC-2) at least once per shift when the corrugator (C-1), laminator (L-1), shredder (SH-1) and the two (2) die cutters (DC-1 and DC-2) are in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 0.5 and 5.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.2.6 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the starch silo (S-1), starch kitchen (S-2), corrugator (C-1), laminator (L-1), shredder (SH-1) and the two (2) die cutters (DC-1 and DC-2) when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting to the indoors. All defective bags shall be replaced.

D.2.7 Broken or Failed Bag Detection

In the event that bag failure has been observed:

- (a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

- (b) **For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).**

Record Keeping and Reporting Requirement [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.8 Record Keeping Requirements

- (a) **To document compliance with Condition D.2.4, the Permittee shall maintain records of daily visible emission notations of the starch silo (S-1), starch kitchen (S-2), corrugator (C-1), laminator (L-1), shredder (SH-1) and two (2) die cutters (DC-1 and DC-2) stack exhaust.**
- (b) **To document compliance with Condition D.2.5, the Permittee shall maintain the following:**
 - (1) **Daily records of the following operational parameters during normal operation when venting to the atmosphere:**
 - (A) **Inlet and outlet differential static pressure; and**
 - (B) **Cleaning cycle: frequency and differential pressure.**
 - (2) **Documentation of all response steps implemented, per event .**
 - (3) **Operation and preventive maintenance logs, including work purchases orders, shall be maintained.**
 - (4) **Quality Assurance/Quality Control (QA/QC) procedures.**
 - (5) **Operator standard operating procedures (SOP).**
 - (6) **Manufacturer's specifications or its equivalent.**
 - (7) **Equipment "troubleshooting" contingency plan.**
 - (8) **Documentation of the dates vents are redirected.**
- (c) **To document compliance with Condition D.2.6, the Permittee shall maintain records of the results of the inspections required under Condition D.2.6 and the dates the vents are redirected.**
- (d) **All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.**

Conclusion

The construction and operation of these emission units shall be subject to the conditions of the attached proposed **Minor Permit Revision to a Minor Source Operating Permit No. 177-14208-00063.**

Uncontrolled Potential Emissions (tons/year)

Controlled Potential Emissions (tons/year)

Baghouse EP-4 controls PM/PM10 emissions from Corrugator (C-1), Laminator (L-1), Shredder (SH-1), Die Cutter 1 (DC-1) and Die Cutter 2 (DC-2)

Appendix A: Process Particulate Emissions

Company Name: Color-Box, LLC
Address City IN Zip: 1056 Industries Road, Richmond, IN 47374
MSOP Minor Permit Revision: 177-14208
Plt ID: 177-00063
Reviewer: NH/EVP

Note: Baghouse EP-1 controls PM/PM10 emissions from the Starch Silo (S-1)

State Potential Emissions (tons/year)						
A. Baghouses						
Process	No. of Units	Grain Loading per Actual Cubic Foot of Outlet Air	Air to Cloth Ratio Air Flow (acfm/ft ²)	Total Filter Area (ft ²)	Control Efficiency	Total (tons/yr)
EP-1	1	0.04000	4.7	64	99.90%	451.72
Total Emissions Based on Rated Capacity at 8,760 Hours/Year						451.72
Federal Potential Emissions (tons/year)						
A. Baghouses						
Process	No. of Units	Grain Loading per Actual Cubic Foot of Outlet Air	Air to Cloth Ratio Air Flow (acfm/ft ²)	Total Filter Area (ft ²)	Control Efficiency	Total (tons/yr)
EP-1	1	0.04000	4.7	64	99.90%	0.45
Total Emissions Based on Rated Capacity at 8,760 Hours/Year and source controls						0.45

Note: Control equipment is considered an integral part of the process.

Methodology:

State Potential (uncontrolled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Federal Potential (controlled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Appendix A: Process Particulate Emissions

Company Name: Color-Box, LLC
Address City IN Zip: 1056 Industries Road, Richmond, IN 47374
MSOP Minor Permit Revision: 177-14208
Plt ID: 177-00063
Reviewer: NH/EVP

Note: Baghouse EP-2 controls PM/PM10 from Starch Kitchen (S-2)

State Potential Emissions (tons/year)						
A. Baghouses						
Process	No. of Units	Grain Loading per Actual Cubic Foot of Outlet Air	Air to Cloth Ratio Air Flow (acfm/ft ²)	Total Filter Area (ft ²)	Control Efficiency	Total (tons/yr)
EP-2	1	0.04000	3.06	64	99.90%	294.10
Total Emissions Based on Rated Capacity at 8,760 Hours/Year						294.10
Federal Potential Emissions (tons/year)						
A. Baghouses						
Process	No. of Units	Grain Loading per Actual Cubic Foot of Outlet Air	Air to Cloth Ratio Air Flow (acfm/ft ²)	Total Filter Area (ft ²)	Control Efficiency	Total (tons/yr)
EP-2	1	0.04000	3.06	64	99.90%	0.29
Total Emissions Based on Rated Capacity at 8,760 Hours/Year and source controls						0.29

Note: Control equipment is considered an integral part of the process.

Methodology:

State Potential (uncontrolled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Federal Potential (controlled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Appendix A: Process Particulate Emissions

Company Name: Color-Box, LLC
Address City IN Zip: 1056 Industries Road, Richmond, IN 47374
MSOP Minor Permit Revision: 177-14208
Plt ID: 177-00063
Reviewer: NH/EVP

Note: Baghouse EP-4 control PM/PM10 emissions from Corrugator (C-1), Laminator (L-1), Shredder (SH-1), Die Cutter 1 (DC-1) and Die Cutter 2 (DC-2)

State Potential Emissions (tons/year)						
A. Baghouses						
Process	No. of Units	Grain Loading per Actual Cubic Foot of Outlet Air	Air to Cloth Ratio Air Flow (acfm/ft ²)	Total Filter Area (ft ²)	Control Efficiency	Total (tons/yr)
EP-4	1	0.00200	1.99	16,800	99.90%	2510.27
Total Emissions Based on Rated Capacity at 8,760 Hours/Year						2510.27
Federal Potential Emissions (tons/year)						
A. Baghouses						
Process	No. of Units	Grain Loading per Actual Cubic Foot of Outlet Air	Air to Cloth Ratio Air Flow (acfm/ft ²)	Total Filter Area (ft ²)	Control Efficiency	Total (tons/yr)
EP-4	1	0.00200	1.99	16,800	99.90%	2.51
Total Emissions Based on Rated Capacity at 8,760 Hours/Year and source controls						2.51

Note: Control equipment is considered an integral part of the process.

Methodology:State Potential (uncontrolled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Federal Potential (controlled):

Baghouse (tons/yr) = No. Units * Loading (grains/acf) * Air/Cloth Ratio (acfm/ft²) * Filter Area (ft²) * 1 lb/7,000 grains * 60 min/hr * 8760 hr/yr * 1 ton/2,000 lbs * 1/(1-Control Efficiency)

Appendix A: Emissions Calculations
VOC and HAP Emissions from the Corrugator/Laminator

Company Name: Color-Box, LLC
Address City IN Zip: 623 South G Street, Richmond, IN 47374
MSOP Minor Permit Revision: 177-14208
Plt ID: 177-00063
Reviewer: NH/EVP

Emissions from the Corrugator (C-1)/Laminator (L-1)

Maximum Line Speed 500 ft/min
Maximum Product Width 64 inches

Glue Usage: 5.5 lbs/msf; 0.6% VOC & less than 0.15% HAPs
Starch Usage: 6.5 lbs/msf; 0.009% VOCs & 0.009% HAPs from starch additive

500 ft/min x	63 inches /	12 inches/foot /	1000	=	2.63 msf/min
5.5 lbs/msf x	2.63 msf/min x	60 min/hr	=		868 lbs of glue/hr
6.5 lbs of starch/msf x	2.63 msf/min x	60 min/hr	=		1026 lbs of starch mix/hr

Maximum Potential VOC Emissions

868 lbs/hr of glue x	0.60% % VOCs	=	5.21 lbs/hr	22.81 tons/yr
1026 lbs/hr of starch x	0.0017% % VOCs	=	0.017 lbs/hr	0.08 tons/yr

Maximum Potential HAP Emissions

868 lbs/hr of glue x	0.07% % Vinyl Acetate	=	0.608 lbs/hr	2.66 tons/yr
868 lbs/hr of glue x	0.07% % Acetaldehyde	=	0.608 lbs/hr	2.66 tons/yr
868 lbs/hr of glue x	0.007% % Formaldehyde	=	0.061 lbs/hr	0.27 tons/yr
1026 lbs/hr of starch x	0.0015% % Methyl Alcohol	=	0.015 lbs/hr	0.07 tons/yr
1026 lbs/hr of starch x	0.00022% % Formaldehyde	=	0.0023 lbs/hr	0.01 tons/yr

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100

Company Name: Color-Box, LLC
Address City IN Zip: 623 South G Street, Richmond, IN 47374
MSOP Minor Permit Revision: 177-14208
Plt ID: 177-00063
Reviewer: NH/EVP

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

6.2

54.3

Facility includes one (1) 6.2 MMBtu/hr steam generator

Pollutant						
Emission Factor in lb/MMCF	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.05	0.21	0.02	2.72	0.15	2.28

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).